

## EXECUTIVE SUMMARY

This report summarizes investigative results from Underground Storage Tank (UST) Site 260 at Hill Air Force Base (Hill AFB) and provides recommendations for corrective action. Conclusions and recommendations are based on soil and ground-water chemical analytical data, field headspace vapor screening, geotechnical analytical data, soil boring logs, and cone penetrometer testing (CPT) piezocone profiles collected during the subsurface investigation.

Site 260 consists of two 40,000-gallon, two 32,000-gallon, and two 25,000-gallon active USTs used to store diesel as a backup fuel supply for the Base Steam Plant, Building 260. The site also contains one 18,000-gallon heating oil tank abandoned in place, and one inactive 1000-gallon emergency generator tank. During the subsurface investigation, a wide range of concentrations of total extractable petroleum hydrocarbon (TEPH) were detected at various depths in soil borings across the site; the highest concentrations were reported from soil borings located between the two product lines running from the tanks to Building 260. In this area, concentrations of TEPH as diesel fuel ranged from 15 to 9300 mg/kg with the deepest soil contamination (120 mg/kg) detected at 120.5 feet below ground surface (bgs). Groundwater is encountered at a depth of 108.5 feet bgs. Based on Utah Division of Environmental Response and Remediation (DERR) criteria, Site 260 ranks as a Level I Environmental Sensitivity site. An estimated 4,000 to 7,000 cubic yards of soil exceed the Utah DERR recommended cleanup levels (RCLs) for a Level I site. One ground-water sample collected from the monitoring well installed between the two product lines (T-260-001) contained elevated concentrations of benzene (15 µg/L) and naphthalene (34 µg/L), and elevated concentrations of chlorinated (halogenated) hydrocarbons: *trans*-1,2-dichloroethene (DCE)(32 µg/L); *cis*-1,2-DCE (33 µg/L); 1,1,1-trichloroethane (TCA)(19 µg/L); trichloroethene (TCE)(460 µg/L); 1,3,5-trimethylbenzene (17 µg/L); and 1,2,4-trimethylbenzene (36 µg/L). No free product was detected in this well after development, however, a second monitoring well (T-260-002) installed at the northwest (downgradient) end of Site 260 contained 2.55 feet of free product before and after well development.

A CPT investigation was conducted to determine the extent of free product. An elliptical plume covering 3.75 acres was defined. The volume of free product present in the pore space of the plume is estimated to be 44,000 gallons. A volatile organic compound (VOC) Method 8260 analysis of a free product sample from well T-260-002 contained 1,200,000 µg/L benzene, 18,000,000 µg/L toluene, 3,500,000 µg/L ethylbenzene, 30,000,000 µg/L xylenes, and 1,100,000 µg/L naphthalene (BTEXN). In addition, extremely high concentrations of *n*-butylbenzene, *sec*-butylbenzene, isopropyltoluene, *p*-isopropyltoluene, *n*-isopropylbenzene, 1,2,3-trimethylbenzene, 1,2,4-trimethylbenzene, and 1,3,5-trimethylbenzene were reported from the free product sample. Hydrocarbon fingerprinting of a free product sample indicated it was composed of JP-4 jet fuel with minor quantities of diesel fuel. A halogenated VOC (Method 8010) analysis of this sample also contained the following halogenated compounds: 430 micrograms per gram (µg/g) 1,1-DCE, 8 µg/g *trans*-DCE, 9 µg/g 1,1,1-TCA, 61 µg/g TCE, and 1 µg/g tetrachloroethylene (PCE).

Although USTs which store diesel fuel at Site 260 may have contributed slightly to ground-water contamination beneath the site, free-phase JP-4 jet fuel in monitoring well

T-260-002 must have an upgradient source. In addition, the elevated concentrations of chlorinated organic compounds in wells T-260-001 and T-260-002 must be attributable to an upgradient contaminant source. This source may likely be historical leakage from abandoned fuel lines which carried product from USTs at Site 280 to the Engine Test Cell (Building 265) and to USTs at Site 228 (Aircraft Maintenance).

Remediation of soil, ground water, and free product at Site 260 was addressed at the Hill AFB Technical Review Committee (TRC) meeting held July 19, 1994. Remediation of Site 260 will be directed in the following manner:

- Soil – An in-situ bioventing system consisting of two air injection wells screened entirely through the vadose zone, seven soil vapor probes, and a 2.5 hp blower has been installed at the site. System start-up is imminent.
- Groundwater – Remediation of ground water, which contains chlorinated hydrocarbons as well as dissolved petroleum products, is incorporated into Hill AFB Operable Unit (OU) 8, and will be addressed as part of the ongoing OU 8 CERCLA investigation.
- Free Product – Free product recovery using a skimmer pump was initiated on January 12, 1994. To date over 1,700 gallons of fuel have been recovered, at a rate of 17 gallons per day (gpd) of product. Product disposal is handled by Hill AFB Hazardous Waste Control Facility. Five additional product recovery wells and a downgradient monitoring well are scheduled to be installed in August 1994. Skimmer pumps are anticipated to be installed in at least two of the recovery wells in September-October, 1994. The wells will also be constructed to accommodate air injection and dual vacuum extraction (DVE) systems. Product recovery at the site is scheduled to continue in the near term.